

# **TITLE 410 INDIANA STATE DEPARTMENT OF HEALTH**

## **LSA Document #12-156**

### **SUMMARY/RESPONSE TO COMMENTS FROM THE PUBLIC HEARING**

The Indiana State Department of Health's (ISDH) Executive Board preliminarily adopted Rule 410 IAC 6-8.3, Residential Onsite Sewage Systems, on May 9, 2012. ISDH published the proposed rule in the April 4, 2012, Indiana Register. A public hearing was held in Indianapolis on July 16, 2012, to solicit comments from the public on the proposed rule. The record of the hearing was held open for submission of written comments, until July 20, 2012. The following parties made comments during the public hearing or submitted written comments:

Randy Staley, private soil science consultant

Thomas A. Felger, MD, Health Officer, and Marc Nelson, Environmental Health Director, St. Joseph County Health Department

Mark McClintock, Environmental Health Specialist, Vigo County Health Department

Linda Mauller, Environmental Health Assistant Director, St. Joseph County Health Department

Amber Willen, private soil science consultant

William D. Hosteter, private soil science consultant, Hosteter Soil Consulting

David Houck, Administrator, Jay County Health Department

Douglas J. Baer, Environmental and Preparedness Supervisor, Dearborn County Health Department

Gary Chapple, REHS, Pollution Control Director, Fort Wayne - Allen County Department of Health

Gary Hudson, private soil science consultant

Gary Koteskey, Sim/Tech Filter

Gary C. Steinhardt, Professor of Agronomy, Purdue University

Greg Inman, Environmental Director, Boone County Health Department

Heath Butz, Environmental Health Specialist, Boone County Health Department

Jason LeMaster, Director of Environmental Health, Hamilton County Health Department

Joe Davis, Environmental Sanitarian, Madison County Health Department

John Bonsett, Director, Environmental Health, Johnson County Health Department

Joshua S. Williams, Administrator, Delaware County Health Department

Julie Haan, REHS, Hendricks County Health Department

Bob Conley, Ron Truex, Brad Jackson, Kosciusko County Commissioners

William L. Remington, Jr., MD, Health Officer, Kosciusko County

Kristina Sommers, Tipton County Health Department

L. Geoffrey Stoner, R.E.H.S., Environmental Health Specialist/Sanitarian, Daviess County Health Department

Melissa Shamp, EHS/Clerk, Fountain-Warren County Health Department

Jason Churchill, Government Relations Representative, Orenco Systems, Inc.

Patrick Mulhall, Vice President, Sales, Polylok, Inc. & Zabel Environmental, Inc.

Hon. David A. Wolkins, Indiana State Representative

Ron R. Noles, Registered Environmental Health Specialist, Tippecanoe County Health Department

Theo B. Terry, III, RS, President/CEO, Bear Onsite, LLC

Timothy J. Haas, PE, James H. Maurer, PE, Haas & Associates, LLC

Tony Mancuso, Administrator, LaPorte County Health Department

The following is a summary of the comments received and ISDH's responses thereto:

**General Comments:**

Comment by Gary Chapple: He recommends an outline type format where points (1), (2), etc. are indented so they are not right below (b), (c) to make it easier to read and find sections.

Response: No Change. The formatting is dictated by LSA.

Comment by Timothy J. Haas, PE and James H. Maurer, PE: They question if there are any changes being considered for the Advanced Enviro-Septic Wastewater System regulations.

*Response:* No change. The Advanced Enviro-Septic Wastewater System is covered by a standard outside of the rule. No change is being contemplated for this system.

*Comment by Timothy J. Haas, PE and James H. Maurer, PE:* Their comments were pertinent to the issues faced by communities bordering Lake Michigan. They requested clarification of rules concerning setbacks from lakes that are a public water supply source and the clarification of the normal high water mark of Lake Michigan. They also expressed concerns about the degradation of dunes areas by wave action from Lake Michigan and the effect that would have on properties served by onsite sewage systems due to erosion issues. They requested that special consideration be given in the rule to that area of the state.

*Response:* Separation distances in section 57 have been changed to include “lake” in the separation distances for public water supplies.

As to the other comments provided, they pertain to issues which affect only 3 counties, and are therefore very limited in scope. The department staff is working with local officials to address those issues through means outside the scope of a state-wide rule (such as IDNR requirements and local ordinances).

#### **Comments by Section:**

##### **Section 56:**

*Comment by Hon. David A. Wolkins, Indiana State Representative:* Representative Wolkins writes that it is not necessary for the on-site soils evaluations to be conducted by a soil scientist who is registered with the Indiana Registry of Soil Scientists (IRSS). He states that Kosciusko County health department staff are fully qualified and capable to oversee the installation of septic tanks in that county. He believes that the \$225 to \$300 cost per copy is an unnecessary burden to property owners in tough economic times. He also believes that this is another example of specialists trying to protect their turf and profession, and not an action that is in the best interest of the people. He states that a lifetime of experience with the various types of soil found in that county cannot be replaced by a registered soil scientist, nor should the cost to do so be passed along to residents.

*Comment by William L. Remington, Jr., MD, Health Officer, Kosciusko County:* Doctor Remington states that he has a sizeable county with numerous lakes and very little sanitary sewer infrastructure outside of the towns. He further states that despite the volume and density of housing that has been based on individual septic systems they do not sense that they have had a major threat from failed systems or contamination of surface or ground water. He states that they do not know of any unusual outbreaks of enteric pathogens. He goes on to state that his health department field staff is very experienced. He claims that the proposed rule is problematic in that it requires a soil scientist at every new septic construction or septic repair of an existing system. He states that this will add expense to county residents and that it will slow down the process without any confidence that it will bring any greater service or greater outcomes to the residents of our county. He explains that the county health department has been “fairly liberal” in calling in a soil scientist to legally weigh in on sites that they feel have some potential for contentious

legal issues with a homeowner. He asks that the health department staff be allowed to continue to conduct the on-site soils evaluations.

Comment by Bob Conley, Ron Truex, and Brad Jackson, Kosciusko County Commissioners: They state that the requirement for a registered soil scientist at every site is an unfair burden on the homeowners of Kosciusko County. They state that the county has employed for many years a highly qualified staff of on-site personnel that is very familiar with the types of soils that exist in Kosciusko County. They further state that on those occasions when doubt arises, they do not hesitate to utilize the services of a registered soil scientist. They believe that the increased cost of a registered soil scientist and the increased time factor are rarely justified with the types of soils in Kosciusko County. They state that their health department staff has always followed the letter of Indiana state sewage codes and that the health department staff should be allowed to continue to conduct on-site soils evaluations.

Comment by Thomas A. Felger, MD, Health Officer, and Marc Nelson, Environmental Health Director, St. Joseph County Health Department: They state that the St. Joseph County Health Department endorses Sec. 56(a) of the proposed rule which requires an IRSS registered soil scientist to perform all soil evaluations for septic permits. Their justification is that soil scientists are professionals who must meet stringent criteria to become registered, and then must document continuing education and pass recertification field-testing to maintain their registration. They state that environmental health specialists (EHS) typically have very limited education and experience in the realm of soil science. They explain that while a soil scientist adds additional cost to the septic permit process, an incorrect assessment of the soil by an EHS, will cost even more through inadequate, oversized, or completely wrong system selection. An errant soil assessment can lead to system failure and groundwater contamination. When these issues come-to-light, there is also liability to the County. They state that requiring a soil scientist for all soil evaluations has been the practice in St. Joseph County for at least 15-20 years or longer. They believe that public health, the groundwater, citizens and the department have benefitted from this requirement.

Comment by Julie Haan, REHS, Hendricks County Health Department: She states that the county had been having problems with immediate failures and when investigated it was determined that the reason for the immediate failures was that the soil had not been described accurately. The county therefore amended its ordinance to require that the on-site soils evaluations be conducted by registered soil scientists. The professional soil reports now being submitted reflect numerous detailed soil attributes that change the design of the systems being installed in the county. These changes are resulting in site specific, long-lasting onsite sewage systems where difficult soil conditions exist.

Comment by David Houck, Administrator, Jay County Health Department: He supports the requirement that all soils evaluations be conducted by a registered soil scientist. He also stated that his health board and attorney believe it is important to have a third party do the soil tests for liability reasons. They also agreed that the soil scientists should be registered to add creditability to the reports.

Comment by Douglas J. Baer, Environmental and Preparedness Supervisor, Dearborn County Health Department: He states that Dearborn County has been requiring the services of registered

soil scientists since 1994. He points out that if thousands of dollars are being spent on system installations, it only makes sense, both new and repair, to be sure that the area that is being considered is actually suitable for an installation. He further states that the last thing anyone wants is to have a system fail because a soil characteristic was missed.

Comment by Gary Chapple, REHS, Pollution Control Director, Fort Wayne - Allen County Department of Health: He states that he supports the requirement that soils evaluations be performed by a registered soil scientist.

Comment by Greg Inman, Environmental Director, Boone County Health Department: He supports the requirement that all soils evaluations be conducted by registered soil scientists. He states that using only registered soil scientists would bring more consistency to soil reporting for onsite evaluations. He further states that soil scientists are trained professionals that give an educated interpretation on the soils located in an onsite area, which gives the health departments a better understanding of the site and that the better understanding of the site helps for a better septic design for the taxpayer.

Comment by Joe Davis, Environmental Sanitarian, Madison County Health Department: He states that the registered soil scientist plays vital role in the design of a sewage disposal system, and can directly impact the functionality of the system especially over long term use. He states that it is important that the soil characteristics are accurately described and the sewage disposal systems are installed in the best possible soils available at the site. He further explains that in order to properly evaluate the soils at a site, submit a comprehensive soil analysis report, and make recommendations in the field, there is a great deal of education and experience that is required. By requiring a soil scientist to become registered, which requires the passing of exams, educational experience, and field experience, the client or purchaser of the soil scientists services is insured that the individual that is hired will perform his or her duties, professionally, accurately, and responsibly, which in turn helps insure the functionality of a sewage disposal system.

Comment by John Bonsett, Director, Environmental Health, Johnson County Health Department: He strongly encourages that language be provided that would require the services of registered professional soil scientists to determine the soil characteristics of the area to be utilized for the absorption field. He has found that homeowners benefit from the knowledge shared by the soil scientist during the site visit. The knowledge shared reinforces the concerns expressed by the local health department during the planning and development stages.

Comment by Joshua S. Williams, Administrator, Delaware County Health Department: He states that the Delaware County Health Department is in full support of the requirement that the onsite soils evaluation be conducted by a certified/registered soil scientist.

Comment by L. Geoffrey Stoner, R.E.H.S., Environmental Health Specialist/Sanitarian, Daviess County Health Department: He expresses his concern for removing the requirement that on-site soils evaluations be conducted by a registered soil scientist. He states that his department does not have the ability to add manpower and that the county would not be able to overcome the financial and legal hardships. He states that Daviess County has required the registered soil scientist for well over 10 years and that it has been quite advantageous to the local health

department, as the staff is not qualified to do the soils evaluations. He further states that the legal issues that could arise from an improper analysis by one of their personnel could be extremely damaging in itself. Should a system failure occur and it was found to be caused by an improper soil profile analysis conducted by their department it could make the county liable for damages that simply could not be afforded.

Comment by Melissa Shamp, EHS/Clerk, Fountain-Warren County Health Department: She supports the requirement that all soils evaluations be conducted by a registered soil scientist. In Fountain and Warren Counties, they require landowners to hire a certified soil scientist to evaluate the soil of any site without a soil report on file. She believes that the only way to determine specific requirements for an onsite sewage system is to first determine the capabilities and limitations of the site. As an Environmental Health Specialists working to ensure appropriate systems in her two counties, she asks that the new rule supports her efforts.

Comment by Tony Mancuso, Administrator, LaPorte County Health Department: He states that the LaPorte County Health Department fully supports the new rule stipulated by the Indiana Code that will require soil borings for existing septic system repairs to be performed by a registered soil scientist. He states that it is in the best interest of not only the department but also the homeowner for a registered Soil Scientist who has the expertise, skills and knowledge to evaluate the intended site. They also believe from a liability stand point for this to be the safest situation for the department. Additionally, he states that this process will not only protect the health of the home owner and his family but also the surrounding neighbors while allowing the Health Department to focus on the site as opposed to the technical review of the soil conditions.

Comment by Linda Mauller, Environmental Health Assistant Director, St. Joseph County Health Department: She comments that she is in favor of Sec. 56(a) of the proposed 410 IAC 6-8.3, which requires an IRSS registered soil scientist to perform all soil evaluations for septic permits. She states that she has 23 years experience in Wells and St. Joseph Counties, but still does not have the training and experience to conduct on-site soils evaluations. She states that soil scientists are professionals who must meet stringent criteria to become registered. Once becoming an IRSS member, they must document continuing education and pass recertification field-testing to maintain their registration. Individuals with this type of education, training and experience are not likely to apply for the EHS position. Requiring a soil scientist adds additional cost to the septic permit process, but an incorrect assessment of the soil by an EHS will cost even more through inadequate, oversized, or completely wrong system selection. An errant soil assessment can lead to system failure and groundwater contamination. When these issues come-to-light, there is also liability to the County.

Comment by Mark McClintock, Environmental Health Specialist, Vigo County Health Department: He states that the Vigo County Health Department supports the revised language of the rule which requires that all soils evaluations be conducted by a registered soil scientist.

Comment by Heath Butz, Environmental Health Specialist, Boone County Health Department: He states that a soil scientist has years of schooling and in the field training to enable them to accurately classify soils. The Wells County HD believes it is crucial that an accurate soil investigation be performed in order to get a properly sized septic system and not requiring the

experts in the field of soils to do these investigations could lead to improperly sized septic systems that could subsequently fail.

*Comment by Ron R. Noles*, Registered Environmental Health Specialist, Tippecanoe County Health Department: The Tippecanoe County Health Department supports the proposed Rule 410 IAC 6-8.3 which updates requirements pertaining to the design, construction, installation, maintenance, and operation of residential onsite sewage systems. The Tippecanoe County Health Department would like to direct its support to the proposed change in Sec. 56 (a) and (b) requiring that any replacement or alteration of a soil absorption system shall include a description of the soil profile by a soil scientist using the guidelines of the NRCS. The health department opinion is that it would benefit the landowner, installer and health department.

*Response:* No change. For many years, the legislature has recognized the need for licensure or registration of professionals practicing in many fields - engineers, architects, land surveyors, plumbers, water well drilling contractors, geologists, to name a few professions – to assure competency and accountability of the practitioners in each of those professions. In 2001, the legislature recognized the same need for the field of soil science, an area where increasing needs for protection of citizens seeking those services would be provided by the assurance of competency and accountability. In that year, the legislature passed P.L.244-2001, which included the requirements for registration as a Professional Soil Scientist or an Associate Soil Scientist. These Registered Soil Scientists are professionals who must meet stringent criteria to become registered. Once registered, they must document continuing education and pass recertification field-testing to maintain their registration.

The criteria for registration as a Professional Soil Scientist includes a bachelor's degree or advanced degree in soil science or a closely allied field; passage of a written examination designed to demonstrate whether the applicant has the necessary knowledge and skill to exercise the responsibilities of the public practice of soil science; passage of a field examination that evaluates field skills in soil morphology and landscape analysis; and a work requirement three years of professional experience.

For renewal of the registration, the Registered Soil Scientist must complete at least 45 CEUs during the 3-year registration period. The Registered Soil Scientist must also complete at least three CEUs, one in each of the three skill areas: soil texture, soil horizon, and pedons/landforms. To receive these three CEUs the Registered Soil Scientist must participate in an evaluation session and submit his/her answers on a form that will be numerically graded for credit.

If the requirements of this legislation are not fully implemented state-wide, then the goal of the legislation is weakened. Most counties throughout the state note that it is important that the soil characteristics are accurately described. As the testimony submitted shows, local health departments throughout the state have determined that on-site soils evaluations should be conducted by registered soil scientists who have shown competency through education, and examination, and who can be held accountable for their professional work. They express the benefits to citizens in their testimony, including documentation of system failures due to incorrect soils evaluations by non-professionals. They have also decided, as the testimony shows, that the county should not accept that liability at taxpayers' expense, nor should it spread the expense of those desiring to build to all of the taxpayers of the county.

And, finally, it should be noted that no soil scientist submitted comment pertinent to this change in the rule.

### **Section 57:**

Comment by Joshua Williams: He didn't see any requirement for separation distance between the onsite sewage system and geothermal systems or loops.

Response: Language has been added to the Separation Distance table in Section 57 to reflect minimum separation distances to geothermal loops or systems. This is important as the use of geothermal systems becomes more common.

Comment by Timothy J. Haas, PE and James H. Maurer, PE: 1. In Section 410 IAC 6-8.2-56 Separation distance; does the item entitled "public water supply well or reservoir" apply to Lake Michigan? Lake Michigan serves at the source of drinking water for many Indiana communities. 2. Also, in Section 410 IAC 6-8.2-56 Separation distance; how does the item entitled "other pond, retention pond, lake or reservoir" and the sub-note 2 "measured from normal high water mark" apply to the Lake Michigan beach which changes in elevation (6' change from high to low since 1918) and water's edge location frequently due to heavy wind and wave actions (20' waves)?

Response: Separation distances in section 57 have been changed to include "lake" in the separation distances for public water supplies. The historical high water mark for Lake Michigan used by the department is 581.5 feet IGLD 1985 (International Great Lakes Datum).

### **Section 59:**

Comment by Randy Staley: He states that the subsurface drain trench should be installed 6 to 8 inches into the massive clay, glacial till, or fragipan, not the 2 inches required by the current rule. This is to be sure and seal off any extraneous water from entering the site. He also expresses his opinion that the state should permit pumping the drainage water, rather than requiring only gravity flow drains. This would permit the drains to go in deeper.

Response: No change. Mr. Staley makes a number of pertinent comments concerning drainage of soil absorption field sites. However, input from local health departments and installers do not support his recommendations concerning the need to install subsurface drains any deeper or any further into the "limiting layer" at the site than what the state rule has required since 1990.

Comment by John Bonsett: He states that he is opposed to pumping the drainage water from perimeter drains for new construction.

Response: No change. As to the use of pumps to move drainage water – this may be a consideration once there are operation and maintenance programs in place throughout the state which mandate the periodicity of verification of pump operation. But until that time, leaving that to the homeowner is not a wise idea. Most homeowners will not recognize the urgency of the matter and will not periodically check pump operation. When the pump goes down and is not replaced or repaired, groundwater will flood the soil absorption field, resulting in failure of the soil absorption field. Replacing or repairing the pump after this has happened may alleviate the



failure for a time, but permanent damage may have been done to the soil absorption field, thus shortening its overall lifespan.

#### **Section 60:**

*Comment by Doug Baer:* He agrees with the wording for the water softener backwash, but questions if it is the right section (he states he doesn't know which section it should be in).

*Response:* No change. Department staff determined that this is the best location for this requirement.

*Comment by Jason LeMaster:* He states that he likes the two tank requirement when wastewater is pumped into septic tank, but he poses this question: Does this also include the grinder pumps that are in basements where pump volume may be ~20 gallons or less? He believes the answer should be yes. He also states that the Presby systems should have outlet filters in the septic tank if a grinder pump is used to pump sewage into the septic tank.

*Response:* No change. The proposed wording already includes situations where the volume is less than 20 gallons, as one of the primary issues is that a grinder pump pulverizes the solids which are detrimental to the settling process in the septic tank. This issue remains, even for lower volumes.

Presby systems are addressed in a separate department standard, not in this rule. Therefore, the comment referencing Presby systems can be handled through that standard.

#### **Section 61:**

*Comment by Doug Baer:* He asks: "If all new tanks are to be outfitted with an outlet filter, does the Presby manual supersede this proposed rule. Also, does this eliminate the possibility of external outlet filters? Then in the next line it says if not provided. What's up with that?"

*Response:* No change. This applies to new tanks. There would be no instances where an external outlet filter would be necessary, or even preferred, when a new tank is being installed. Presby systems are addressed in a separate department standard, not in this rule. Therefore, the comment referencing Presby systems can be handled through that standard. There are times when a septic tank outlet filter is not required, such as when a tank discharges to another tank, or to a secondary treatment unit. These tanks do not need a septic tank outlet filter, but they do need to have appropriate baffles in place. Section 64(c)(4) allows for an external outlet filter on repairs.

#### **Section 64:**

*Comment by Gary Koteskey:* He asks: If a form of filtration is provided in the dosing tank, such as a pressure filter, vault screen, pump screen, etc. is a septic tank filter still mandatory? (On a pressure system, while a septic tank filter is still helpful, the best place for filtration is at the outlet of the dosing chamber.) He then states that NSF standard 46 is designed for slotted filters, an alternate method of approval should be allowed for filters that are not of a slotted screen design. He reiterates others' comments that the current listed NSF 46 approved filters have only

been tested for solids larger than 1/8" in diameter. Further, he points out that the rule requires 120 lineal feet of filtration when there are existing filters and future filters that cannot be rated for lineal feet because they do not use slots for filtration. He also has concern that filters will function without a bypass of unfiltered wastewater, sludge or scum during normal use and cleaning or exchange. He states that perhaps there should be a requirement that flow can be shut off at the filter or the outlet during service. And finally, he questions the intent of subsection (h)(1), which states that the outlet filter and their cartridges remain in service for the life of the septic tank. He wants to know if the filter must last the life of the tank, or just that a filter must be in the tank for the life of the tank.

Comment by Jason Churchill: He states that the proposed rule would require effluent filters that prevent the passage of solids larger than 1/16 inch. That requirement would prohibit the use of effluent filters with 1/8 inch openings. He questions the grounds for excluding effluent filters with 1/8-inch openings. Moreover, he note that the NSF/ANSI Standard 46 testing and product certification protocol recognizes effluent filters with 1/8-inch openings (either 1/16-inch or 1/8-inch polystyrene beads may be used for test, at the manufacturer's discretion).

Comment by Theo Terry: He supports the requirement for NSF Standard 46 certification but states that the level of filtration should be 1/8<sup>th</sup>, as allowed by NSF, not the 1/16<sup>th</sup> stated in the proposed rule. He also states that he has concerns about the development of the requirements for 120 lineal footage and 45 in<sup>2</sup> total open area requirements for the filters. He provides some suggested language that will allow every major effluent filter to be able to compete in the state (except for one) once they have obtained NSF certification. If the requirement is changed to a six-inch case diameter from the eight-inch diameter, it will allow all major manufacturers to be able to sell filters in the state. This is a rule then that does not benefit one company over another. Plus it also encourages innovation by having a performance incentive imbedded in the rule that allows companies to by-pass the prescriptive requirement of either 6 or 8-inch diameter once they have proven themselves in an NSF Field Performance test.

Response: The language has been changed to allow for 1/8<sup>th</sup> inch filtration as tested for in NSF/ANSI Standard 46. The stipulations concerning the 45 square inches and 120 lineal feet of filtration area have been removed. This section of the rule now mirrors the NSF/ANSI Standard 46, without the additional technical requirements. This addresses the primary concerns of each of the three commenters, while still allowing for acceptable, if not optimal, requirements for septic tank outlet filters.

Also, the wording in subsection (h) has been revised to address Mr. Kotesky's comment about the filter remaining in place for the life of the septic tank.

The pressure filter, vault screen, pump screen, etc, referred to by Mr. Kotesky are independent filters or screens, independent of the septic tank outlet filter. Each serves a purpose, and can be used, but department staff has determined that the septic tank outlet filter is the most cost-effective device of all those he lists.

## **Section 66:**

*Comment by Doug Baer:* He states that the word dimension should be plural in his opinion. Distribution boxes are measured in both width and length. Dimension (singularly) could be construed as long as it meets one area at 12".

*Response:* No change. This section applies to the "minimum interior dimension of a distribution box shall be 12 inches". The use of the singular is appropriate here, as it means that at least one of the interior dimensions must be no less than 12 inches.

## **Sections 70 and 72:**

*Comment by Randy Staley:* In his testimony, Mr. Staley questions the use of effervescence of a soil layer in a Wisconsin till soil as indicating permeability which is too slow for suitability for a soil absorption field. He states that he has seen situations in the field which cause him to question this requirement in the rule, because water is moving through those layers. He recommends that the language in the rule be modified so that this layer is not too slowly permeable for a soil absorption field if the soil scientist observes moisture and roots in the soil layer which is effervescent. He also stated that there are other soil scientists who agree with him on this topic.

He also questions the different loading rates in the Soil Loading Rate table versus the Soil Loading Rate table for Elevated Sand Mound systems. He recommends that we take a closer look at the soil loading rates used by other states in the Midwest. He also recommends that we change the soil loading rates for prismatic structure back to what they were in 410 IAC 6-8.1.

He stated concerns over the soil loading charts and the terminology used in the drainage section for massive clay horizons. In the soil loading rate charts, there is a soil loading rate assigned to certain types of massive clay but not to others - but the drainage section has no differentiation between the two types of massive clay.

*Comment by Gary Hudson:* Mr. Hudson recommends adding the statement "unless the compaction is broken up by a method approved by the department" to the end of Section 69 (c) (5) (Where compacted soil material is identified in the soil to a depth greater than twelve (12) inches); Changing the percent clay from 27 to 20 percent, and the percent coarse fragments from 50 to 60 percent, in all sections of the rule pertaining to coarse fragments; Moving natural platy structure back to the same column as granular structure in the loading rate chart; and that the loading rates for prismatic structure should be returned to the rates assigned in 6-8.1.

*Comment by William Hosteter:* His comments basically support Randy Staley concerning Wisconsin Glacial Till considerations. He provides some detailed comments that shows the complexity of the issue.

*Comment by Amber Willen:* She states that she agrees with what Randy Staley wrote.

*Comment by Gary C. Steinhardt:* He states that Randy Staley has addressed a number of issues that could be improvements. He states that the issue of calcareous Wisconsin age glacial till and the effect that it has on loading rate is a complex one. He cites soils morphology in various parts

of the state and how it affects onsite sewage system selection and performance. Some of the Wisconsin age glacial tills may be conducive to satisfactory onsite sewage system performance and some Wisconsin age glacial tills should never be approved for onsite sewage systems. He states that approval of those sites that may be conducive to satisfactory onsite sewage systems should only be done on a case by case basis and then only in consultation between the soil scientist involved, the local health department and ideally the State Department of Health. He reiterates that this is one of the most vexing issues that we face and that further research is needed to guide soil scientists, local health departments and the State Department of Health. Without the critical studies, local health departments are not going to be able to provide the public with the ability to install onsite systems where they are appropriate and protect the public by refusing approval where they do not fit.

Comment by John Bonsett: He stated that he shares similar concerns with Randy Staley concerning the issue of permeability of calcareous till in Wisconsin till soils.

Response: The Soil Loading Rate Tables have been changed as they relate to prismatic soil structure, so that the prismatic structure listings are in the same columns as in former 410 IAC 6-8.1.

The sections containing the requirements concerning the identification of soil horizons developed from Wisconsin glacial till that effervesce with dilute hydrochloric acid have been modified to include language that if the soil scientist provides documentation using a method acceptable to the department, the required vertical separation distance will not be applied.

Mr. Staley provides appropriate comments to the effect that not all of these soil horizons are too slowly permeable to require the vertical separation distance required by the proposed rule requirements. However, his recommendation that the determination be based on soil moisture and the presence of roots are not determinations that can be easily or properly made in the field. The rule requires that NRCS guidelines be used to describe soils. There are no guidelines published by NRCS for describing soil moisture as a means of classifying soils. Therefore, there is no standard for doing this. NRCS guidelines do include methods of describing root penetration in soil horizons. However, the way that the roots penetrate the horizons, the number of roots and sometimes even the shapes of the roots must be determined in order to begin to understand what root penetration means in terms of soil permeability. Most soils evaluations are done using push probes or bucket augers. With this method of soils evaluations, none of the necessary descriptions concerning the roots can be ascertained, making this type of attempted evaluation worthless.

Purdue University, in one of its publications, states that “The presence of free carbonates is generally associated with unweathered, or slightly weathered, parent material. Often the glacial till at or a few cm below the uppermost carbonates in the profile is dense and acts as a limiting layer for plant roots and movement of water and effluent. Thus the presence of carbonates in till-derived soils often is a sign of slower permeability.” (D.P. Franzmeier, G.C. Steinhardt, D.G. Schulze, Indiana Soil and Landscape Evaluation Manual, Version 1.0, Purdue University, January, 2004) It is the presence of the free carbonates in the soil that reacts with the dilute hydrochloric acid that is the basis for the test for reduced permeability.

After receipt of the comments submitted on this topic, Mike Mettler and Alan Dunn, staff members of the Environmental Public Health Department, ISDH, interviewed Dr. Gary Steinhardt, PhD., Professor, Department of Agronomy, Purdue University, concerning this matter. Doctor Steinhardt is in agreement that this is an issue that was appropriately raised and must be addressed. However, he is of the opinion that we must work together (the department, Purdue, and soil scientists) to determine a methodology to differentiate the different calcareous horizons and where the break in permeability classification should be. He stated that this is a complex issue, both from geographical and morphological standpoints, and that the department is wise in taking a conservative stand on this until the issue of differentiation of these horizons has been resolved.

The department is in agreement with Doctor Steinhardt, therefore the insertion of the language that would permit additional methodology to be considered.

Mr. Staley's comment concerning the differentiation between the two types of massive clay in the soil loading rate table but not in the drainage section has been resolved by clarification in the drainage section.

Finally, there are numerous studies and published papers that state that natural platy structure is not as permeable as granular structure. Therefore, this requested change has not been made.

#### **Section 74:**

Comment by Kristina Sommers: She states that the effluent pipe parameter for 6" pipe is not in the proposed version of the law.

Response: No change. The proposed rules state that the effluent sewers shall have a minimum diameter of four inches. Therefore, six inch pipe is acceptable.

#### **Section 75:**

Comment by Kristina Sommers: She states that the proposed rule still states that there must be five feet of unperforated pipe between the D-box and the trench. She wants clarification that this also means that there must be a five foot separation from the d-box to each trench.

Response: The proposed rule has been changed to reflect that there shall be a distance of at least 5 feet from the distribution box to each trench. The provision for the unperforated pipe between the d-box and the trench will remain.

#### **Section 84:**

Comment by Kristina Sommers: She is concerned that the rule does not specify what a "sufficient sample" is.

Response: No change. This refers to the amount of soil that is necessary to conduct the "ribbon test" in the field to see if soils are too wet for installation of a soil absorption field. This is typically handled through training and is not a difficult determination to make.

## **Section 90:**

*Comment by Gary Chapple:* He recommends that flowable fill be added as a method to fill in an abandoned septic tank in situations where the tank cannot be crushed due to location. He also recommends that the rule require the removal of risers such as distribution box and inspection ports from above the surface.

*Response:* Wording has been added to allow for the use of flowable fill in situations where the septic tank cannot be crushed, for the removal of risers for distribution boxes and for the removal of inspection ports. The removal of these items will be easy and inexpensive. The use of flowable fill may not be as inexpensive as other fill materials but may, on rare occasions, be necessary.